

one or more errors in one or more selected symbols may be received (1416). The offset for at least the respective icon may be modified in accordance with the one or more received corrections (1418).

[0167] FIG. 15 is a schematic diagram illustrating an embodiment of a user interface for a portable electronic device 1500. The device 1500 includes a keyboard 1510 with a plurality of icons. Different spacings ("guard bands") are used between the icons. The guard bands between icons visually encourage a user to touch the center of an adjacent icon, although user contact in the guard band region may also activate the nearest icon to the contact. In some embodiments, icons near the center of the display 208 may have a smaller guard band between adjacent icons than icons near an edge of the display. This may reduce errors when using the display 208 if it is easier for a user to select or contact a respective icon near the center of the display 208. In some embodiments, the guard band near the edge of the display 208 may be larger than that near the center of the display 208. Conversely, in some embodiments (opposite to what is shown in FIG. 15), icons near the center of the display 208 may have a larger guard band between adjacent icons than icons near an edge of the display. This may reduce errors when using the display 208 if it is easier for a user to select or contact a respective icon near the edge of the display 208. In some embodiments, the guard band near the edge of the display 208 may be smaller than that near the center of the display 208. In some embodiments, icons near the center of the display 208 may be larger than icons near the edge of the display 208. In some embodiments, icons at the edge of the display are about half the size of the other icons because it is easier to identify contacts corresponding to edge icons.

[0168] In some embodiments, either the size of the icons or the size of the guard bands between icons could incrementally vary between the edge of the display and the center of the display (e.g., from small icons at the edge to large icons in the center or from small guard bands at the edge to large guard bands in the center).

[0169] A flow chart for a symbol entry process 1600 corresponding to such embodiments is shown in FIG. 16. While the symbol entry process 1600 described below includes a number of operations that appear to occur in a specific order, it should be apparent that the process 1600 can include more or fewer operations, which can be executed serially or in parallel (e.g., using parallel processors or a multi-threading environment), an order of two or more operations may be changed and/or two or more operations may be combined into a single operation.

[0170] A plurality of icons may be displayed on a touch-sensitive display (1610). The plurality of icons may be arranged in rows in a first dimension of the display. A first guard band in the first dimension between adjacent icons in a first subset of the icons may be greater than a pre-determined value and a second guard band in the first dimension between adjacent icons in a second subset of the icons may be less than a pre-determined value. A contact by the user with the display that corresponds to selection of the respective icon may be detected (1612). A symbol corresponding to the respective icon may be displayed (1614).

[0171] FIG. 17 is a schematic diagram illustrating an embodiment of a user interface for a portable electronic device 1700. The device 1700 includes a keyboard 1710 that has a plurality of icons. A respective icon corresponds to two or more symbols. Some symbols may be selected by contacting two or more icons simultaneously. A respective

symbol that is selected may be displayed in the display tray 214. For example, a letter 'e' may be selected by contacting and breaking contact with the first icon in the first row. A letter 'l' may be selected by contacting and breaking contact with the first and the second icons in the first row. The icons include visual information indicating the combinations of contacts with icons (also referred to as chords) that correspond to given symbols. Keyboard 1710 is sometimes referred to as a hop-scotch keyboard.

[0172] A flow chart for a symbol entry process 1800 corresponding to such embodiments is shown in FIG. 18. While the symbol entry process 1800 described below includes a number of operations that appear to occur in a specific order, it should be apparent that the process 1800 can include more or fewer operations, which can be executed serially or in parallel (e.g., using parallel processors or a multi-threading environment), an order of two or more operations may be changed and/or two or more operations may be combined into a single operation.

[0173] A plurality of icons may be displayed on a touch-sensitive display (1810). A first icon and a second icon each correspond to two or more symbols. A contact by a user with the display that corresponds to the first icon and the second icon is detected (1812). A respective symbol in the two or more symbols to which the contact corresponds may be determined (1814). A visual indicator corresponding to the respective symbol is displayed (1816).

[0174] FIG. 19 is a schematic diagram illustrating an embodiment of a user interface for a portable electronic device 1900. A keyboard 1910 does not include fixed icons. Instead symbols are displayed. A nearest group of symbols, such as three letters in a region 1912, are selected in accordance with a user contact with the display 208. In other embodiments, the region 1912 may include two or more symbols or characters. A correct set of symbols may be determined using a lexicography model or system, such as that shown in FIG. 10A, in accordance with a sequence of groups of symbols that correspond to a sequence of contacts by the user. As more contacts occur, a tree of possible words or sets of symbols corresponding to the groups of symbols that have been selected may be pruned until a correct or highest likelihood word or set of symbols is determined.

[0175] In other embodiments not shown, a respective user may play a game that is used to determine a smallest acceptable key size for a user interface, such as a keyboard. The smallest key size may be in accordance with a user's manual dexterity, age, health, finger size and vision. Errors made in using the icons in a keyboard during the game may help determine a minimum icon size for the respective user.

[0176] In some embodiments, icons in the embodiments of the user interfaces, such as the keyboards described above, may have an effective contact area or a strike area that is larger than the displayed icon size. In other embodiments, the effective contact area or strike area may be larger than the displayed icon size in at least one dimension of the display 208 surface.

[0177] The foregoing descriptions of specific embodiments of the present invention are presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed. Rather, it should be appreciated that many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its